John M. Guynn

From:	Randy Smith [rsmith@earthshell.com]
Sent:	Saturday, September 17, 2005 6:05 PM
To:	John M. Guynn
Subject:	FW: Update Wrap Model
Attachments:	Wrap Model - Rev 007 101501 - SIMPLE.xls

Here are the wrap models.

RAS

From: Matt Loos
Sent: Tuesday, October 16, 2001 9:45 AM
To: Donna Balinkie; Randy Smith; Kishan Khemani
Cc: Scott Houston; Matt Loos
Subject: Update Wrap Model

Folks,

Senior management has requested that we simplify the wrap model with respect to assumption input, and flexibility of use. There have been several iterations to achieve this goal. The attached wrap model addresses those issues as well as other improvment requests. If I ignored or misapplied any suggestions or requirements, or some additional requirements have surfaced since we last spoke, please contact me immediately.

<u>Wrap Weight</u>
The wrap costing model is based upon the wrap's weight.
1) For some examples, the weight and dimension are given, and drive the thickness. In this case, we are zeroing in on the thickness for improved economics. We know the desired weight, but what is the required thickness?
2) In the more common case, thickness and dimension are given, and we calculate the weight. We know the desired dimension, but what is the weight?

Given these two scenarios, the model has been improved to easily switch from one case to the other, depending on what is known. The model as distributed today has thickness and dimension as givens and the <u>weight is calculated.</u> If the weight and dimension are known and you require calculating the thickness, you need to type in 'Yes' into cell C19. This triggers the cost model (specifically cell L17) to look at cell C23. Please let me know if you would like training on how to use this added feature.

<u>Wrap Density</u>
The wrap consists of several raw materials of varying density. In order to calculate the wrap density properly, we consider the density of each component. The current wrap density calculation properly considers the successive steps of combining the raw materials and the resulting density at each step (First step: combine eastar and filler to create papermatch. Second step: combine papermatch and biomax to create the wrap).

Please contact me with questions is this model is still not as simple and useful as you require.

Matt

EarthShell Corporation
Biodegradable Wrap Model

Distribution 10/16/01:
Donna
Randy
Scott
Kishan

EarthShell Corporation
Biodegradable Wrap Model

Version changes listed by date (most recent at top)

Color Key

Assumptions link/Input	Light Yellow
Linked to another tab	Turquoise (Color Scheme just under Turquoise)
Calculated	Lavender (Color Scheme just to the left of Lavender)
Drives a link to a tab	Light Green

Version 007 10-15-01 - SIMPLE - Matt Loos

1- Added detail for resin densities in order to calculate final density of the wrap

2- Added yes/no trigger to how gram weight is used by the wrap costing model

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8-

Version 007 10-11-01 - SIMPLE - Matt Loos
Version 007 10-10-01 - SIMPLE - Matt Loos
Version 007 10-08-01 - SIMPLE - Matt Loos
Version 007 10-08-01 - Matt Loos
Version 007 09-26-01 - Matt Loos
Version 007 09-18-01 - Matt Loos
Version 007 09-15-01 - Matt Loos
Version 007 09-11-01 - Matt Loos
Version 007 08-16-01 - Matt Loos
Version 006 06-06-01 - Matt Loos
Version 006 04-18-01 - Matt Loos
Version 005 04-05-01 - Matt Loos
Version 004 03-09-01 - Matt Loos
Version 003 02-20-01 - Matt Loos
Version 002 11-27-00 - Matt Loos
Version 001 11-13-00 - Matt Loos
Version 000 11-07-00 - Matt Loos

EarthShell Corporation
Biodegradable Wrap Model

Sandwich Wrap - Biomax/Eastar - Mono-Layer Film
12" x 12"

50% Biomax - 4026, 15% Eastar Bio GP / 35% Filler - T4338ES

Assumptions	Value	Units
Biomax Density	1.35	g/cc
Eastar Bio Density	1.25	g/cc
Filler Density	2.25	g/cc
Wrap Density	1.65	g/cc
Weight variable (yes/no):	**NO**	
Film Thickness	23.7	microns
Wrap Width	12	inch
Wrap Length	12	inch
Wrap Weight	3.63	grams
Weight calculated:	**YES**	
Film Thickness	23.7	microns
Wrap Width	12	inch
Wrap Length	12	inch
Wrap Weight	3.63	grams

	Weight Mix ratios Fin.Prod.	mat req'd g/piece	Price/LB $	Cost/1000 $
Raw Materials:				
Biomax 4026	50.0%	1.82	1.10	4.41
Eastar Bio - GP	15.0%	0.54	1.00	1.20
(a) (e) Filler - Assume CaCO2	31.0% (f)	1.13	0.09	0.22
Whitener - TiO2	4.0% (f)	0.15	0.90	0.29
Total Raw Materials	100.0%	3.63	0.76 (g)	6.12
(c) Combined converting process		3.63	0.45	3.60
(b) Material Loss Allowance during conversion			12.0%	0.83
Subtotal Raw Mat./Formulation			0.87	10.56
Secondary Packaging				0.08
Total Cost of Manufacture				10.64
Markup			30%	3.19
(d) **Target Selling Price**				13.83

Notes:
(a) Filler assumed to be compounded into one of the resins by one of the resin manufacturers.
(b) Assumes large quantity runs where the start-up loss is 'amortized' to an effective loss of less than 1%.
 Current observations are Casting (12.5%), Printing (3%), and Perforating (1%) vendor observations.
(c) Could be either one of the four following in-line converting processes:
 A) Cast Film, MDO, Slit, Print and Perforate on a roll,
 B) Cast Film, MDO, Slit, Print and Sheet flat in a box,
 C) Blown Film, Slit, Print and Perforate on a roll,
 D) Blown Film, Slit, Print and Sheet flat in a box.
(d) FOB converter. Freight to Distribution Center not included.
(e) Targeting $0.65 to $0.71 for 'filled' Eastar masterbatch.
(f) Papermatch has 31% CaCO2 and 4% TiO2.
(g) Current quote for wrap-specific CaCO2 @ 2 micron thickness for $0.11.
 Current quote laminate-specific CaCO2 @ 25 micron thickness for $0.0195

EarthShell Corporation
Biodegradable Wrap Model

Sandwich Wrap - Biomax/Eastar - Mono-Layer Film
10.5" x 13"

50% Biomax - 4026, 15% Eastar Bio GP / 35% Filler - T4338ES

Assumptions	Value	Units		Weight Mix ratios Fin.Prod.	mat req'd g/piece		Price/LB $	Cost/1000 $
			Raw Materials:					
			Biomax 4026	50.0%	1.72		1.10	4.18
			Eastar Bio - GP	15.0%	0.52		1.00	1.14
			(a) (e) Filler - Assume CaCO2	31.0% (f)	1.07		0.09	0.21
			Whitener - TiO2	4.0% (f)	0.14		0.90	0.27
			Total Raw Materials	100.0%	3.44	(g)	0.76	5.80
Biomax Density	1.35	g/cc						
Eastar Bio Density	1.25	g/cc	(c) Combined converting process		3.44		0.45	3.42
Filler Density	2.25	g/cc						
			(b) Material Loss Allowance during conversion				12.0%	0.79
Wrap Density	1.65	g/cc						
			Subtotal Raw Mat./Formulation				0.87	10.01
Weight variable (yes/no):	NO							
Film Thickness	23.7	microns	Secondary Packaging					0.08
Wrap Width	12	inch						
Wrap Length	12	inch	**Total Cost of Manufacture**					10.09
Wrap Weight	3.63	grams						
			Markup	30%				3.03
Weight calculated:	YES							
Film Thickness	23.7	microns	(d) Target Selling Price					13.11
Wrap Width	10.5	inch						
Wrap Length	13	inch						
Wrap Weight	3.44	grams						

Notes:
(a) Filler assumed to be compounded into one of the resins by one of the resin manufacturers.
(b) Assumes large quantity runs where the start-up loss is 'amortized' to an effective loss of less than 1%.
   Current observations are Casting (12.5%), Printing (3%), and Perforating (1%) vendor observations.
(c) Could be either one of the four following in-line converting processes:
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   B) Cast Film, MDO, Slit, Print and Sheet flat in a box,
   C) Blown Film, Slit, Print and Perforate on a roll,
   D) Blown Film, Slit, Print and Sheet flat in a box.
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